

Performance Testing for Axygen® Automation Tip (PK-200-R)

Application Note



Method

The PerkingElmer Janus® liquid handling workstation was used to assess precision as coefficient of variation (% CV), and accuracy as percent deviation (% D), for Axygen 200 µL tips.

To test the ability of the tip to dispense accurately and precisely at two dispense volumes, 20 µL and 200 µL, a rack of 96 tips aspirated from an Axygen low profile reservoir (Corning Cat. No. RES-SW96-LP) and dispensed into a Corning® 96-well, black, clear bottom microplate (Corning Cat. No. 3631).

For the 20 µL test volume, each tip aspirated 20 µL of Range B solution (Artel Cat. No. MVS-204) and dispensed 20 µL into 180

µL of diluent solution (Artel Cat. No. MVS-202) in each well. For the 200 µL test volume, each tip aspirated 200 µL of Range A solution (Artel Cat. No. MVS-203) and dispensed 200 µL into 0 µL of diluent solution in each well. To determine the volume of liquid dispensed in each well, absorbance readings for the solutions (diluted Range B solution for 20 µL dispense and Range A solution for 200 µL dispense) were measured using an Artel ELx800NB® plate reader (Artel Cat. No. 1311197). Each study was performed 3 independent times for a total of 288 tip dispenses. Evaluation criteria include % D from the set dispense volume and % CV of the measured dispense volume for the 288 tip dispenses.

Results

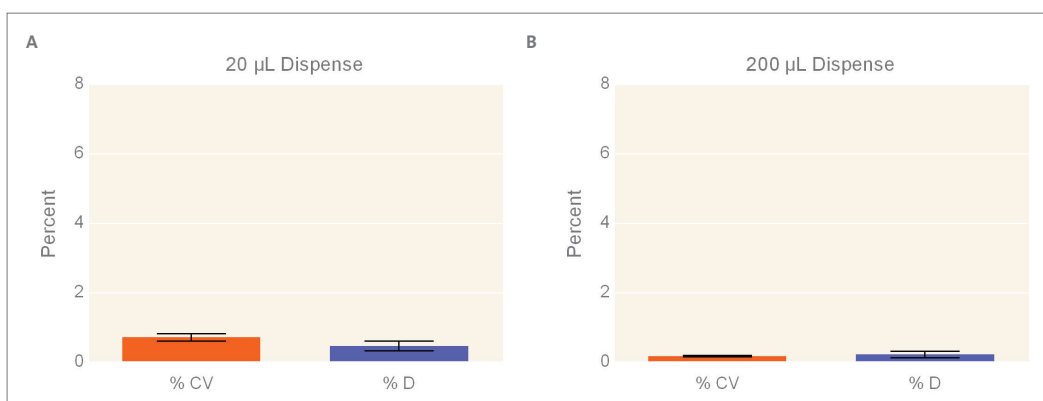


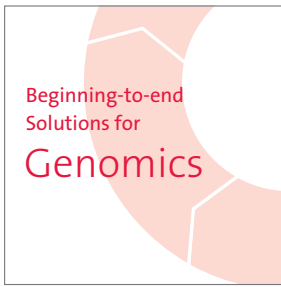
Figure 1. Analysis of PK-200-R tip with aqueous dispense. The precision (assessed by % CV) and accuracy (assessed by % D) of Axygen PK-200-R tips dispensing (A) 20 µL and (B) 200 µL volumes using the PerkingElmer Janus liquid handling workstation were determined using the Artel MVS® system. The % CV and % D were below 1% for both 20 µL and 200 µL dispenses, n = 288.

Table 1. Aqueous Dispense Results

Target Volume (µL)	20	200
n	288	288
% CV	0.73 ± 0.10	0.19 ± 0.02
% D	0.49 ± 0.14	0.23 ± 0.09
Outliers	0	0

Conclusion

The % CV and % D for the Axygen automation PK-200-R tips dispensing 20 µL and 200 µL were 5% or below. Therefore, Axygen automation PK-200-R tips can precisely and accurately dispense volumes as low as 20 µL and as high as 200 µL for aqueous solutions using the PerkingElmer Janus liquid handling workstation.



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